CLAIMS:

1. A semiconductor processor system comprising:

a process chamber adapted to process at least one semiconductor workpiece using a process fluid;

a connection coupled with the process chamber and configured to receive the process fluid;

a sensor coupled with the connection and configured to output a signal indicative of the process fluid; and

a control system coupled with the sensor and configured to control at least one operation of the semiconductor processor system responsive to the signal.

2. The system according to claim 1 wherein the connection comprises a connection of a sampling system configured to provide the process fluid in a substantially static state.

3. The system according to claim 2 wherein the control system is configured to compare the substantially static process fluid with a signature to determine at least one characteristic of the process fluid.

4. The system according to claim 3 wherein the control system is configured to control a flow rate of the process fluid into the process chamber responsive to the comparison.

5. The system according to claim 4 wherein the control system is configured to halt processing within the process chamber responsive to the comparison.

6. The system according to claim 1 wherein the sensor is configured to monitor turbidity of the process fluid.

7. The system according to claim 1 wherein the connection is adapted to couple with a process fluid supply and is configured to supply process fluid from the process fluid supply to the process chamber.

8. The system according to claim 1 wherein the connection comprises a drain coupled with the process chamber.

9. The system according to claim 1 wherein the process chamber comprises a pad adapted to process the at least one semiconductor workpiece and the connection is configured to extract process fluid from the pad.

10. The system according to claim 1 wherein the sensor is configured to output a signal indicative of accumulation of particulate matter within the connection.

10 ~~11~~. The system according to claim 1 wherein the control system is configured to process the signal to monitor processing of the at least one semiconductor workpiece within the process chamber.

11 ~~12~~. The system according to claim 1 further comprising a flush system coupled with the connection and configured to selectively flush the connection.

12 ~~13~~. The system according to claim ~~12~~ 11 wherein the flush system is configured to flush the connection with at least one of the process fluid and a rinse fluid.

13 ~~14~~. The system according to claim ~~12~~ 11 wherein the flush system is configured to flush the connection responsive to control from the control system.

14 ~~15~~. The system according to claim 1 further comprising a mixing system configured to mix plural components of the process fluid and the control system is configured to control the mixing system.

15 ~~16~~. The system according to claim 1 further comprising a storage device configured to store historical data corresponding to the process fluid.

17. The system according to claim 1 wherein the process chamber comprises a process chamber of a chemical-mechanical polishing processor.

18. A semiconductor processor system comprising:

a process chamber adapted to process at least one semiconductor workpiece using a process fluid;

a connection coupled with the process chamber and configured to transport the process fluid;

a sampling system coupled with the connection and configured to receive a sample of the process fluid;

a sensor coupled with the sampling system and configured to output a signal indicative of the sample of the process fluid; and

a control system coupled with the sensor and configured to control at least one operation of the semiconductor processor system responsive to the signal.

19. The system according to claim 18 wherein the sampling system is configured to provide the process fluid in a substantially static state.

20. The system according to claim 19 wherein the control system is configured to compare the sample of the process fluid with a signature to determine at least one characteristic of the process fluid.

21. The system according to claim 20 wherein the control system is configured to control a flow rate of the process fluid into the process chamber responsive to the comparison.

22. The system according to claim 18 wherein the sensor is configured to monitor turbidity of the process fluid.

23. The system according to claim 18 wherein the control system is configured to control the sampling system to draw the sample of the process fluid.

24. The system according to claim 18 wherein the control system is configured to monitor operation of the semiconductor processor system and to control the sampling system to draw the sample during defined operations of the semiconductor processor system.

25. The system according to claim 18 further comprising a storage device coupled with the sensor and configured to store historical data corresponding to the process fluid.

26. The system according to claim 18 wherein the process chamber comprises a process chamber of a chemical-mechanical polishing processor.

27. A semiconductor processor system comprising:

a process chamber adapted to process at least one semiconductor workpiece;

a process fluid system including:

a mixer configured to mix a plurality of components of a process fluid;

a connection configured to supply the process fluid to the process chamber; and

a sensor configured to output a signal indicative of at least one of the components and the process fluid; and

a control system coupled with the sensor and configured to control mixing of the components responsive to the signal.

28. The system according to claim 27 wherein the process fluid system comprises at least one metering device configured to permit flow of at least one of the components and the control system is configured to control the metering device to control a flow rate of the component responsive to the signal.

29. The system according to claim 27 wherein the sensor is coupled with the connection.

30. The system according to claim 27 wherein the sensor is coupled with the connection and further comprising another sensor coupled with a supply connection configured to supply one of the components to the mixer.

30 ~~31~~. The system according to claim 27 wherein the sensor is configured to monitor turbidity of the process fluid.

31 ~~32~~. The system according to claim 27 further comprising a storage device coupled with the sensor and configured to store historical data corresponding to the process fluid.

30 ~~33~~. The system according to claim 27 wherein the process chamber comprises a process chamber of a chemical-mechanical polishing processor.

38. The system according to claim 34 wherein the process chamber comprises a process chamber of a chemical-mechanical polishing processor.

39. A semiconductor processor system comprising:

a process chamber adapted to process at least one semiconductor workpiece using a process fluid;

a process fluid system including:

a connection coupled with the process chamber and configured to transport process fluid relative to the process chamber;

a flush system configured to flush the connection using a flush fluid; and

a sensor coupled with the flush system and configured to output a signal indicative of the flush fluid; and

a control system coupled with the sensor and configured to control the flush system to flush the connection responsive to the signal.

40. The system according to claim 39 wherein the control system is configured to control the flush system to prime the connection responsive to a start-up operation of the semiconductor processor system.

41. The system according to claim 40 wherein the flush system is configured to prime the connection with flush fluid comprising process fluid responsive to the start-up operation.

42. The system according to claim 40 wherein the sensor is configured to monitor turbidity of the flush fluid and the control system is configured to control the flush system responsive to the turbidity of the flush fluid.

43. The system according to claim 39 wherein the control system is configured to control the flush system to rinse the connection responsive to a halt operation of the semiconductor processor system.

44. The system according to claim 43 wherein the flush system is configured to rinse the connection with flush fluid comprising rinse fluid responsive to the halt operation.

45. The system according to claim 43 wherein the sensor is configured to monitor turbidity of the flush fluid and the control system is configured to control the flush system responsive to the turbidity of the flush fluid.

46. The system according to claim 39 wherein the sensor is configured to monitor turbidity of the flush fluid.

47. The system according to claim 39 wherein the process fluid system is configured to supply process fluid to the process chamber.

48. The system according to claim 39 wherein the process chamber comprises a process chamber of a chemical-mechanical polishing processor.

49. A semiconductor processor system comprising:

a process chamber adapted to process at least one semiconductor workpiece using a process fluid;

a connection configured to transport the process fluid relative to the process chamber;

a sensor coupled with the connection and configured to output a signal indicative of accumulation of particulate matter within the connection; and

a control system coupled with the sensor and configured to monitor the accumulation responsive to the signal.

50. The system according to claim 49 wherein the connection is arranged in a substantially horizontal orientation.

51. The system according to claim 50 wherein the sensor is arranged to monitor accumulation in a substantially vertical orientation with respect to the connection.

52. The system according to claim 49 further comprising a flush system configured to flush the connection and wherein the control system is configured to control the flush system responsive to monitoring the accumulation.

53. The system according to claim 49 further comprising a recirculation system configured to recirculate process fluid within the connection and wherein the control system is configured to control the recirculation system responsive to monitoring the accumulation.

54. The system according to claim 49 wherein the connection comprises a connection configured to provide process fluid to the process chamber.

55. The system according to claim 49 wherein the connection comprises a drain connection configured to receive process fluid from the process chamber.

56. The system according to claim 49 wherein the sensor is configured to monitor turbidity of the process fluid.

57. The system according to claim 49 wherein the process chamber comprises a process chamber of a chemical-mechanical polishing processor.

58. A system configured to provide a semiconductor workpiece process fluid comprising:

a connection configured to transport a semiconductor workpiece process fluid relative to a semiconductor process chamber;

a sensor oriented relative to the connection and configured to output a signal indicative of the semiconductor workpiece process fluid; and

a control system coupled to receive the signal from the sensor and configured to monitor the semiconductor workpiece process fluid using the signal.

59. The system according to claim 58 wherein the sensor is configured to output the signal indicative of turbidity of the semiconductor workpiece process fluid.

60. The system according to claim 58 wherein the control system is configured to compare the signal with a signature to monitor the semiconductor workpiece process fluid.

61. The system according to claim 58 further comprising at least one metering device configured to permit flow of a component of the semiconductor workpiece process fluid, and the control system is configured to control the metering device to control a flow rate of the component responsive to the signal.

62. The system according to claim 58 wherein the process chamber comprises a process chamber of a chemical-mechanical polishing processor.

63. A system configured to provide a semiconductor workpiece process fluid comprising:

a mixer configured to mix a plurality of components of a semiconductor workpiece process fluid;

a sensor configured to output a signal indicative of at least one of the components and the semiconductor workpiece process fluid; and

a control system coupled with the sensor and configured to control mixing of the components responsive to the signal.

64. The system according to claim 63 wherein the system comprises at least one metering device configured to flow one of the components, and the control system is configured to control the metering device to control a flow rate of the component responsive to the signal.

65. The system according to claim 63 wherein the sensor is configured to output the signal indicative of the semiconductor workpiece process fluid, and further comprising another sensor configured to output another signal indicative of one of the components.

66. The system according to claim 63 wherein the sensor is configured to monitor turbidity of the semiconductor workpiece process fluid.

67. The system according to claim 63 wherein the process chamber comprises a process chamber of a chemical-mechanical polishing processor.

68. A semiconductor workpiece processing method comprising:

providing a semiconductor processor system having a process chamber adapted to process a semiconductor workpiece;

processing the semiconductor workpiece within the process chamber using a process fluid;

monitoring the process fluid; and

controlling at least one operation of the semiconductor processor system responsive to the monitoring.

69. The method according to claim 68 further comprising providing a sample of the process fluid and the monitoring comprises monitoring the sample.

34. A semiconductor processor system comprising:

a process chamber adapted to process at least one semiconductor workpiece using a process fluid;

a process fluid system coupled with the process chamber and including:

a recirculation system configured to recirculate the process fluid; and

a sensor coupled with the recirculation system and configured to output a signal indicative of the process fluid; and

a control system coupled with the sensor and configured to control recirculation of the process fluid using the recirculation system responsive to the signal.

35. The system according to claim 34 wherein the control system is configured to control the recirculation system to recirculate the process fluid responsive to the process fluid being out of specification.

36. The system according to claim 34 wherein the sensor is configured to monitor turbidity of the process fluid.

37. The system according to claim 34 wherein the process fluid system is configured to supply process fluid to the process chamber.

70. The method according to claim 69 further comprising providing the sample of the process fluid in a substantially static state and the monitoring comprises monitoring the process fluid in the substantially static state.

71. The method according to claim 69 wherein the monitoring comprises comparing the sample of the process fluid with a signature.

72. The method according to claim 68 further comprising flushing a connection configured to transport the process fluid and the controlling comprises controlling the flushing.

73. The method according to claim 68 wherein the monitoring comprises monitoring turbidity of the process fluid.

74. The method according to claim 68 further comprising supplying the process fluid to the process chamber and the monitoring is during the supplying.

75. The method according to claim 68 further comprising draining the process fluid from the process chamber and the monitoring is during the draining.

76. The method according to claim 68 wherein the processing comprises processing using a pad, and further comprising extracting process fluid from the pad during the processing and the monitoring comprises monitoring the process fluid after the extracting.

77. The method according to claim 68 further comprising transporting the process fluid relative to the process chamber using a connection and the monitoring comprises monitoring accumulation of particulate matter within the connection.

78. The method according to claim 68 further comprising:

receiving a start-up command of the semiconductor processor system; and

priming a connection configured to transport the process fluid using a flush fluid responsive to the receiving.

79. The method according to claim 78 wherein the priming comprises priming with flush fluid comprising the process fluid.

80. The method according to claim 78 wherein the monitoring comprises monitoring turbidity of the flush fluid during the priming and the controlling comprises controlling the priming.

81. The method according to claim 68 further comprising:

receiving a halt command of the semiconductor processor system; and

flushing a connection configured to transport the process fluid responsive to the receiving.

82. The method according to claim 81 wherein the flushing comprises flushing with flush fluid comprising a rinse fluid.

83. The method according to claim 81 wherein the monitoring comprises monitoring turbidity of the flush fluid during the flushing and the controlling comprises controlling the flushing.

84. The method according to claim 68 further comprising mixing plural components to provide the process fluid and the controlling comprises controlling the mixing.

85. The method according to claim 68 further comprising storing historical data of the process fluid after the monitoring.

86. The method according to claim 68 wherein the processing comprises chemical-mechanical polishing the semiconductor workpiece.

87. A semiconductor workpiece processing method comprising:

providing a semiconductor processor system adapted to process a semiconductor workpiece using a process fluid;

providing a sample of the process fluid;

providing the sample of the process fluid in a substantially static state;

monitoring the sample of the process fluid; and

controlling an operation of the semiconductor processor system responsive to the monitoring.

88. The method according to claim 87 wherein the monitoring comprises monitoring the turbidity of the sample of the process fluid.

89. The method according to claim 87 wherein the monitoring comprises monitoring differential turbidity of the sample of the process fluid.

90. The method according to claim 89 wherein the monitoring comprises monitoring differential turbidity with respect to different moments in time.

91. The method according to claim 87 wherein the monitoring comprises comparing the sample of the process fluid with a signature.

92. The method according to claim 87 wherein the controlling comprises controlling a flush system to at least one of prime and rinse a connection configured to transport the process fluid.

93. The method according to claim 87 wherein the controlling comprises controlling a recirculation system to recirculate the process fluid.

94. The method according to claim 87 further comprising monitoring an operation of the semiconductor processor system and the providing the sample comprises providing the sample during defined operations of the semiconductor processor system.

95. The method according to claim 87 further comprising storing historical data of the process fluid after the monitoring.

96. A method of preparing semiconductor workpiece process fluid comprising:

providing plural process fluid components;

mixing the process fluid components to form a semiconductor workpiece process fluid;

monitoring at least one of the process fluid components and the process fluid; and

controlling the mixing [illegible].

97. The method according to claim 96 wherein the monitoring comprises monitoring the process fluid.

98. The method according to claim 96 wherein the monitoring comprises monitoring both process fluid components.

99. The method according to claim 96 wherein the monitoring comprises monitoring both process fluid components and the process fluid.

100. The method according to claim 96 wherein the monitoring comprises monitoring turbidity.

101. The method according to claim 96 wherein the controlling comprises adjusting flow rates of the process fluid components.

102. The method according to claim 96 further comprising storing historical data of at least one of the process fluid components and the process fluid after the monitoring.

103. A semiconductor workpiece processing method comprising:

providing a semiconductor processor system adapted to process a semiconductor workpiece using a process fluid;

transporting the process fluid relative to the semiconductor processor system;

monitoring the process fluid; and

recirculating the process fluid after the monitoring.

104. The method according to claim 103 wherein the monitoring comprises monitoring turbidity of the process fluid.

105. The method according to claim 103 further comprising supplying the process fluid to a process chamber of the semiconductor processor system after the recirculating.

106. The method according to claim 103 further comprising controlling the recirculating responsive to the monitoring.

107. A semiconductor workpiece processing method comprising:

providing a semiconductor processor system adapted to process a semiconductor workpiece using a process fluid;

transporting the process fluid relative to the semiconductor processor system using a connection;

flushing the connection using a flush fluid; and

monitoring the flush fluid during the flushing.

108. The method according to claim 107 wherein the flushing comprises at least one of priming and rinsing the connection.

109. The method according to claim 107 wherein the monitoring comprises monitoring turbidity of the flush fluid.

110. The method according to claim 107 further comprising controlling the flushing responsive to the monitoring.

111. The method according to claim 107 further comprising supplying the process fluid to a process chamber of the semiconductor processor system after the flushing.

112. The method according to claim 107 further comprising receiving a start-up command of the semiconductor processor system and the flushing comprises priming responsive to the [illegible]

113. The method according to claim 112 wherein the priming comprises priming with flush fluid comprising the process fluid.

114. The method according to claim 112 further comprising:

monitoring turbidity of the flush fluid; and

controlling the flushing responsive to the monitoring.

115. The method according to claim 107 further comprising receiving a halt command of the semiconductor processor system and the flushing comprises rinsing responsive to the receiving.

116. The method according to claim 115 wherein the flushing comprises rinsing with flush fluid comprising a rinse fluid.

117. The method according to claim 115 further comprising:

monitoring turbidity of the flush fluid; and

controlling the flushing responsive to the monitoring.

118. A semiconductor workpiece processing method comprising:

providing a semiconductor processor system adapted to process a semiconductor workpiece using a process fluid;

transporting the process fluid relative to the semiconductor processor system using a connection;

monitoring accumulation of particulate matter within the connection; and

controlling at least one operation of the semiconductor processor system responsive to the monitoring.

119. The method according to claim 118 wherein the transporting comprises transporting using a substantially horizontal connection.

120. The method according to claim 119 wherein the monitoring comprises monitoring in a substantially vertical direction.

121. The method according to claim 118 wherein the monitoring comprises monitoring turbidity.

122. The method according to claim 118 wherein the controlling comprises controlling a flushing operation of the connection responsive to the monitoring.

123. The method according to claim 118 wherein the controlling comprises controlling a recirculating operation of the connection responsive to the monitoring.

124. The method according to claim 118 wherein the transporting comprises supplying process fluid to a process chamber of the semiconductor processor system.

125. The method according to claim 118 wherein the transporting comprises draining process fluid from a process chamber of the semiconductor processor system.

126. A method of delivering semiconductor workpiece process fluid to a semiconductor processor comprising:

providing semiconductor workpiece process fluid;

transporting the semiconductor workpiece process fluid relative to a semiconductor processor; and

monitoring the semiconductor workpiece process fluid.

127. The method according to claim 126 wherein the monitoring comprises monitoring turbidity of the semiconductor workpiece process fluid.

128. The method according to claim 126 wherein the monitoring comprises comparing the semiconductor workpiece process fluid with a signature.

129. The method according to claim 126 wherein the providing comprises mixing a plurality of components of the semiconductor workpiece process fluid, and further comprising controlling the mixing responsive to the monitoring.